

REMARKS

The remarks below are numbered to correspond to the numbering used in the office action.

1. Appropriate correction has been made regarding the informalities objected to by the examiner and other informalities the applicant has found.

2. Applicant respectfully submits that the prior art does not anticipate, under 35 USC § 102(b), the claims presented.

3. Claims 1 and 2 stand rejected under 35 U.S.C. § 102. The rejection is respectfully traversed. The clam-shell opening cups of Poll are in no way similar to the openings on the exterior of the drum of the applicant's invention. Applicant's amendments to claim 1 further clarify that the opening in accordance with the invention as defined in claim one open radially outward from the axis about which the drum rotates, in contrast to the cups of Poll which open, in which the opening to receive leafy plants is oriented parallel to the axis of rotation of the planting mechanism.

Moreover, the operation of the cups in Poll is entirely different from the operation of the drum with exterior openings in accordance with the invention. The cups of Poll receive the large leafy plants for transplanting in an opening at the top of the cup, but then release the plants by splitting the cup open in two clamshell halves. The instant invention, in contrast, received and releases seedlings through the same opening, as described in the specification and more clearly stated in the claim as amended.

4. Applicant respectfully submits that prior art does not make obvious, under 35 USC § 103, the claims presented.

5. Claim 3 and 6–12 stand rejected under 35 USC §103(a) as being unpatentable over Poll (5,159,887) in view of Williamses (6,327,986). For the reasons more fully stated above, Poll does not disclose the subject matter claimed by the applicant as his invention in Claims 1–2. Applicant agrees that Poll fails to disclose that the release of the seedlings into the ground can be facilitated by a blast of air.

The combination of Poll with Williames therefore does not disclose or render obvious the subject matter of claims 3 or 6-12. Moreover, applicant respectfully traverses the Examiner's position that Williames in combination with Poll discloses "the use of an air jet to facilitate planting be keeping the delivery of seedlings more uniform and predictable." The release in Poll occurs only upon the opening of the two clam-shell halves of the cups. There is no basis for combining this release initiated by a mechanical opening of the cup with a jet of air by which the jet of air will in any way control the release. In contrast, in the applicant's subject matter, the jet of air can beneficially be employed to produce more even spacing of release of seedlings from the radially outward openings on the drum exterior.

6. Claim 4 stands rejected under 35 USC §103(a) as being unpatentable over Poll (5,159,887) in view of Williames (6,327,986) as applied to Claim 3 above, and further in view of Bouldin (5,860,372). For the reasons more fully stated above, Poll does not disclose the subject matter claimed by the applicant as his invention in Claims 1-2 and the combination of Poll with Williames does not disclose the subject matter claim by the applicant as his invention in Claim 3. Applicant agrees that the combination of Poll and Williames fails to disclose a manually adjustable seedling release point. The combination of Poll with Williames in view of Bouldin therefore does not disclose or render obvious the subject matter of claim 4.

Moreover, applicant respectfully traverses the Examiner's position that Bouldin in combination with Poll and Williames discloses "that it is advantageous to be able to reposition the air jet to accommodate various sizes of seedlings as depicted in Figures 6A and 6B." The following excerpt from Bouldin is believed to describe the embodiment illustrated in Figures 6A and 6B therein:

With reference to FIGS. 5A-5C, 6A, 6B and 7 a gripper is designated generally by the reference numeral 88. Gripper 88 is generally comprised of a vertical support arm 90 attached to the brackets 75. Belt 93 is shown positioned within the spaced apart components of the brackets 75. The belt 93 is generally a continuous strand which interlaces each of the grippers 88 of the gripper assembly 14 (as best seen in FIG. 1 pertaining to the collection of grippers

illustrated in that Figure). Apertures 94 of the bracket 75 are provided to inter-engage and slide along the rails 73 of the gantry 70 as best seen in FIG. 1.

A water tube 100 is positioned substantially parallel to the vertical arm 90 and is held in place in relative alignment therewith and attachment thereto with a plurality of collars 104. The collars have a central bore (not shown) in which the water tube can slide. The water tube has an inlet end 101 and an outlet 103. Positioned near the outlet end and attached to the water tube 100 is a plunger like separator 106 (or as will be described below as an air bladder).

The separator 106 has at least one beveled surface 105 and is positioned between the gripper fingers 107 which are positioned in spaced apart pivoting relationship to one another. Pivot 109 enables the gripper fingers to open and close in a pinching fashion on the arm 90. Angle 110 or denoted by the greek symbol alpha, is preferably 30 degrees. A similar angle of 30 degrees, or 60 from the horizontal, corresponds with the angle of the track 84 of FIG. 4. The preferred angle alpha of the gripper fingers or angle alpha of gripper presentation has been selected to correspond with the operation of the device which will be more thoroughly described hereinbelow.

In use, the gripper fingers 107 are separated by a downward movement of the water tube 100 in response to the plunger separator 106 passing between the spaced apart gripper fingers 107. In this fashion, the plunger separator has an inclined surface so that insertion of the plunger separator 106 forces the gripper fingers 107 apart and when extracted therefrom the biased pivot 109 enables the gripper fingers to flex back toward one another and create a pinching action. Thus, when the gripper fingers surround a seedling plug (as best seen in FIG. 8), the distal end 111 of the gripper fingers 107 surround the seedling plug 108. When the water tube is extracted, thereby removing the plunger 106 from between the gripper fingers 107, the gripper fingers pinch the plug in such a manner as to take possession of the plug seedling 108. Of course it is also contemplated that the gripper fingers may have a angled portion and the plunger may be symmetrical and lacking a beveled surface in order to accomplish the same function.

(Col. 8:52-9:34.)

As described therein, the water tube "is positioned substantially parallel to the vertical arm 90 and is held in place in relative alignment therewith and

attachment thereto with a plurality of collars 104.” It appears not to be repositioned to accommodate various sizes of seedlings. Instead, the “downward movement of the water tube” is the operation by which “the gripper fingers 107 are separated.” Accordingly, Bouldin, neither alone nor in combination, discloses the use of a pneumatic jet in the way disclosed by applicants.

7. Claim 5 stands rejected under 35 USC § 103(a) as being unpatentably over Poll (5,159,887) in view of Bouldin (5, 860,372). For the reasons more fully stated above, Poll does not disclose the subject matter claimed by the applicant as his invention in Claims 1–2. Applicant agrees that Poll fails to disclose that the upright conduit could have a rectangular cross section. The combination of Poll with Bouldin therefore does not disclose or render obvious the subject matter of Claim 5.

8. Claims 13–15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Poll (5,159,887) in view of Williams (6,327,986) and further in view of Boots et al. (4,290,373). The rejection is respectfully traversed. The clam-shell opening cups of Poll are in no way similar to the openings on the exterior of the drum of the applicant’s invention. Applicant’s amendments to claim 1 further clarify that the opening in accordance with the invention as defined in claim one open radially outward from the axis about which the drum rotates, in contrast to the cups of Poll which open, in which the opening to receive leafy plants is oriented parallel to the axis of rotation of the planting mechanism.

Moreover, the operation of the cups in Poll is entirely different from the operation of the drum with exterior openings in accordance with the invention. The cups of Poll receive the large leafy plants for transplanting in an opening at the top of the cup, but then release the plants by splitting the cup open in two clamshell halves. The instant invention, in contrast, received and releases seedlings through the same opening, as described in the specification and more clearly stated in the claim as amended.

Applicant agrees that Poll fails to disclose that the release of seedlings into the ground can be facilitated by a blast of air. The combination of Poll with

Williames therefore does not disclose or render obvious the subject matter of claims 13–15. Moreover, applicant respectfully traverses the Examiner’s position that Williames in combination with Poll discloses “the use of an air jet to facilitate planting be keeping the delivery of seedlings more uniform and predictable.” The release in Poll occurs only upon the opening of the two clam-shell halves of the cups. There is no basis for combining this release initiated by a mechanical opening of the cup with a jet of air by which the jet of air will in any way control the release. In contrast, in the applicant’s subject matter, the jet of air can beneficially be employed to produce more even spacing of release of seedlings from the radially outward openings on the drum exterior.

9. Claim 16 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Poll (5,159,887) in view of Williames (6,327,986) and Boots et al. (4,290,373) and further in view of Paul (4,807,543). The rejection is respectfully traversed. For the reasons more fully stated above, the combination Poll and Williames and Boots et al. does not disclose or make obvious the subject matter claimed by the applicant as his invention in Claims 13–15. Applicant agrees that the combination of Poll and Williames and Boots et al fails to disclose that there could be a second planter drum mounted on a second drum shaft. The combination of Poll with Williams and Boots et al. and Paul therefore does not disclose or render obvious the subject matter of Claim 16.

10. Claim 16 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Poll (5,159,887) in view of Williames (6,327,986) and Boots et al. (4,290,373) and further in view of Bouldin (5,860,372). The rejection is respectfully traversed. For the reasons more fully stated above, the combination Poll and Williames and Boots et al. does not disclose or make obvious the subject matter claimed by the applicant as his invention in Claims 13–15. Applicant agrees that the combination of Poll and Williames and Boots et al fails to disclose a manually adjustable seedling release point. The combination of Poll with Williames and Bootes et al in view of Bouldin therefore does not disclose or render obvious the subject matter of claim 4

Moreover, applicant respectfully traverses the Examiner's position that Bouldin in combination with Poll and Williams discloses "that it is advantageous to be able to reposition the air jet to accommodate various sizes of seedlings as depicted in Figures 6A and 6B." The following excerpt from Bouldin is believed to describe the embodiment illustrated in Figures 6A and 6B therein:

With reference to FIGS. 5A-5C, 6A, 6B and 7 a gripper is designated generally by the reference numeral 88. Gripper 88 is generally comprised of a vertical support arm 90 attached to the brackets 75. Belt 93 is shown positioned within the spaced apart components of the brackets 75. The belt 93 is generally a continuous strand which interlaces each of the grippers 88 of the gripper assembly 14 (as best seen in FIG. 1 pertaining to the collection of grippers illustrated in that Figure). Apertures 94 of the bracket 75 are provided to inter-engage and slide along the rails 73 of the gantry 70 as best seen in FIG. 1.

A water tube 100 is positioned substantially parallel to the vertical arm 90 and is held in place in relative alignment therewith and attachment thereto with a plurality of collars 104. The collars have a central bore (not shown) in which the water tube can slide. The water tube has an inlet end 101 and an outlet 103. Positioned near the outlet end and attached to the water tube 100 is a plunger like separator 106 (or as will be described below as an air bladder).

The separator 106 has at least one beveled surface 105 and is positioned between the gripper fingers 107 which are positioned in spaced apart pivoting relationship to one another. Pivot 109 enables the gripper fingers to open and close in a pinching fashion on the arm 90. Angle 110 or denoted by the greek symbol alpha, is preferably 30 degrees. A similar angle of 30 degrees, or 60 from the horizontal, corresponds with the angle of the track 84 of FIG. 4. The preferred angle alpha of the gripper fingers or angle alpha of gripper presentation has been selected to correspond with the operation of the device which will be more thoroughly described hereinbelow.

In use, the gripper fingers 107 are separated by a downward movement of the water tube 100 in response to the plunger separator 106 passing between the spaced apart gripper fingers 107. In this fashion, the plunger separator has an inclined surface so that insertion of the plunger separator 106 forces the gripper fingers 107 apart and when extracted therefrom the biased pivot 109 enables the gripper

fingers to flex back toward one another and create a pinching action. Thus, when the gripper fingers surround a seedling plug (as best seen in FIG. 8), the distal end 111 of the gripper fingers 107 surround the seedling plug 108. When the water tube is extracted, thereby removing the plunger 106 from between the gripper fingers 107, the gripper fingers pinch the plug in such a manner as to take possession of the plug seedling 108. Of course it is also contemplated that the gripper fingers may have a angled portion and the plunger may be symmetrical and lacking a beveled surface in order to accomplish the same function.

(Col. 8:52-9:34.)

As described therein, the water tube "is positioned substantially parallel to the vertical arm 90 and is held in place in relative alignment therewith and attachment thereto with a plurality of collars 104." It appears not to be repositioned to accommodate various sizes of seedlings. Instead, the "downward movement of the water tube" is the operation by which "the gripper fingers 107 are separated." Accordingly, Bouldin, neither alone nor in combination, discloses the use of a pneumatic jet in the way disclosed by applicants.

11. Applicant respectfully requests reconsideration and reexamination in light of the amendments and arguments above.

12. Applicant respectfully submits that the claims as presented are patentable over the prior art, including that made of record but not relied upon by the examiner.

Applicant hereby requests reconsideration and reexamination thereof.

With the above amendments and remarks, this application is considered ready for allowance and Applicant earnestly solicits an early notice of same. Should the Examiner be of the opinion that a telephone conference would expedite prosecution of the subject application, he is respectfully requested to call the undersigned at the below-listed number.

Respectfully submitted,

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